

REMARKS

This letter is responsive to the office action dated November 18, 2004. Claims 1-10, and 12-29 remain in this application. Claims 1, 9, 10, 20, 24 and 29 have been amended. The Applicant submits that each of claims 1-10 and 12-29 is now in condition for allowance.

Oath/Declaration

The Examiner objects to the declaration as being altered without initialization. Respectfully, our records do not indicate that the declaration originally filed with the present application (executed on Nov. 22, Nov. 24, and Dec. 20) was altered after execution. The Examiner is requested to particularize what portion(s) of the declaration appear altered, so that it can be determined whether such defects, if they exist, may be rectified without supplying a new oath or declaration. It may be noted that the declaration was signed but not dated by the first-named inventor. It is respectfully submitted that it would be erroneous to raise an objection on this basis alone as it is not specifically required by the Patent Rules (in particular, 37 CFR §1.63, §1.66 and §1.68) governing such documents. Withdrawal of this objection is requested.

35 U.S.C. § 101 rejection

In subsequent paragraph 1 of the office action, the Examiner objects to claims 29 under 35 USC §101. Claim 29 states that the claimed method is computer-implemented, as would be understood by a person skilled in the art reading the specification. For greater certainty, claim 29 has been amended to indicate that the steps of the method are performed by computer. Withdrawal of this objection is requested.

35 U.S.C. § 112 rejection

The term “time-valued” recited in claims 1, 20, 24 and 29, is objected to by the Examiner. Risk values for an instrument are determined at a particular time for a particular scenario (see e.g. paragraphs 65, 66, 82 of the present application as published). The scenario may be considered to be “time-valued” in the sense that each scenario comprises a risk factor value at at least a first and second time interval, as clarified explicitly in the claim itself. Nonetheless, the term has been deleted from the claims to avoid confusion.

The term “least two different selected subsets” in claims 9 and 10 is objected to by the Examiner. The Applicant contemplates that the process of determining risk values can be performed in parallel (see e.g., paragraphs 66-67 of the present application as published). For example, in the embodiment described at paragraph 66, each of multiple risk engines can process some of the instruments in the selected set of instruments for each scenario and time. For greater clarity, the term “each of at least two different selected subsets” has been amended to “different instruments” in claims 9 and 10.

35 U.S.C. § 103 rejection

In paragraph 2 of the office action, the Examiner has rejected the claims as being unpatentable over **Dembo** (U.S. Patent No. 5,148,365) in combination with **Moore et al.** (U.S. Patent No. 5,446,885), **Tull, Jr. et al.** (U.S. Patent No. 6,062,056), and **Ohata et al.** (U.S. Patent No. 5,864,857).

The independent claims of record explicitly provide that first instrument risk values produced for each financial instrument for each scenario and for each time interval are stored in a database organized as a multi-dimensional structure, wherein one axis of the structure represents financial instruments, another axis of the structure represents scenarios, and another axis of the structure represents

time, and wherein at least one first instrument risk value associated with the respective financial instrument, scenario, and time interval are stored in the structure. At least a subset of the instrument risk values stored in the database comprises mark-to-future values. For ease of exposition, this database with the foregoing claimed properties is referred to as an **"instrument/scenario/time database"** in these Remarks. The claims also require that risk values in this database be aggregated by aggregation engine(s) to produce risk metrics, used for performing risk management.

The Examiner states at page 10 of the office action that the instrument/scenario/time database taught by the Applicant is prior art. The Applicant respectfully disagrees. Reference is made by the Examiner to pages 7 line 1 to page 8 line 31, and more particularly to page 8 lines 2-14 of the Applicant's specification. In the identified section, no multi-dimensional database is described, and no risk values are stored in such a multi-dimensional database. In the system described in the identified section, any specific, resultant computed total risk value for a portfolio can be "stored" in a general sense (e.g. in memory, to be output to a user), but it is not stored for future re-use such that it is effectively "indexed" by instrument, scenario, and time in a multi-dimensional database. In the past, this approach was not considered as it was widely accepted that risk management of portfolios could only be performed by analyzing portfolios in their entirety, because the interactions between instruments in the portfolio were perceived to be too complex. If a subset of the portfolio were to be analyzed, or if the portfolio were to undergo changes, risk analysis would be re-performed on the entirety of the subset or the changed portfolio. It was generally understood in the field of financial risk management that it was necessary to re-perform the analysis, in order to ensure that the complex co-dependencies between the instruments in the given subset or changed portfolio would be captured. Since it was considered necessary to recalculate risk values for each subset or changed portfolio, there was no

incentive to store information such as mark-to-future values or risk factor values, at the instrument, scenario, and time level, for use in future analysis.

In addition, the Examiner suggests that **Ohata et al.** ("the '857 patent") discloses the use of the instrument/scenario/time database as claimed. **Ohata et al.** discloses the structure of a multi-dimensional database generally, and a method of retrieving data from the database at high speed. The patent does not specifically disclose a database organized as a structure having one axis representing financial instruments, another axis representing scenarios, and another axis representing time. More importantly, the patent does not disclose a database for storing instrument risk values, each associated with a particular financial instrument, scenario, and time interval, which can then be aggregated by an aggregation engine to produce a risk metric.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be some reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the Applicant's disclosure.

The cited references do not teach a database for storing risk values, organized as a multi-dimensional structure, with one axis of the structure representing financial instruments, another axis of the structure representing scenarios, and another axis of the structure representing time, where at least one first instrument risk value associated with the respective financial instrument, scenario, and time interval are stored in the structure, and where the instrument risk values can be summed at each scenario and at each time interval by an aggregation engine to produce aggregated risk values in computing a desired risk metric for a portfolio.


Furthermore, the claimed combination of features, for which protection is being sought, is not suggested in any of the references cited by the Examiner. It is also respectfully submitted that it is clear that there is no motivation to combine the references in the manner suggested by the Examiner within the references themselves, and no direction to persons skilled in the art to do so. A teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in the prior art. In the field of risk management to which the Applicant's claimed invention relates, the prior art clearly teaches away from the Applicant's approach, and it is respectfully noted that none of the cited references disclose a system or method that suggests otherwise.

Finally, it is submitted that the need to mosaic at least four distinct references from disparate fields to sustain an obvious objection, which the Applicant traverses, also suggests that that the combination of features as claimed would not be obvious to persons skilled in the art.

For the above reasons, and in view of previously prevented remarks, the Applicants submit that claims 1-10 and 12-29 are patentable over the cited art, and withdrawal of the Examiner's rejection is requested. All objections and rejections have been addressed. It is respectfully submitted, therefore, that the present application is in position for allowance, and a notice to that effect is earnestly solicited.

Respectfully submitted,

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